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(54) Title: CARBON-COATED LI-CONTAINING POWDERS AND PROCESS FOR PRODUCTION THEREOF

(57) Abstract: The invention provides a new route for the synthesis of carbon-coated powders having the olivine or NASICON structure, which form promising classes of active products for the manufacture of rechargeable lithium batteries. Carbon-coating of the powder particles is necessary to achieve good performances because of the rather poor electronic conductivity of said structures. For the preparation of coated LiFePO₄, sources of Li, Fe and phosphate are dissolved in an aqueous solution together with a polycarboxylic acid and a polyhydric alcohol. Upon water evaporation, polyesterification occurs while a mixed precipitate is formed containing Li, Fe and phosphate. The resin-encapsulated mixture is then heat treated at 700 °C in a reducing atmosphere. This results in the production of a fine powder consisting of an olivine LiFePO₄ phase, coated with conductive carbon. When this powder is used as active material in a lithium insertion-type electrode, fast charge and discharge rates are obtained at room temperature and an excellent capacity retention is observed.



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